



SC

PHYS3233 Questions spéciales de géophysique interne

[22.5h] 2 credits

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Language: french
Level: 3rd cycle course

Aims

The course is destined to students having already followed courses in internal geophysics to allow them to deepen their knowledge in certain fields depending on their needs.

Main themes

The course contains a certain numbers of modules among which a total of 22,5hrs will be chosen, in concertation with the students. The modules available are: - determination of terrestrial potential by satellite methods (6h); - determination of the geoid by astronomical, gravimetric and altimetric methods (4h); - seismic waves (6h): reflexions and refractions, speed profiles and determination of elastic parameters; - heat flux and tectonic (4h): measure and interpretation of heat flux on continents and below oceans; - rotation of the earth and tides (6h): response of the earth to the luni-solar attraction, motion equations, deformation calculations, gravimetric effects, polar motion, length-of-the day variations, nutation and precession; - internal structure of the earth and normal modes (4h): calculation of free oscillations of the earth for an elliptic earth, in rotation, containing a elastic solid inner core, liquid outer core, and an elastic mantle; - comparaison of models of the interior of the earth with those of other planets (4h); - convection inside the mantle (4h): calculation of convective flux, anomalies in associated masses (observed by tomography), internal deformation, in particular deformations at mantle interfaces between the lower mantle and upper mantle, core-mantle boundary, calculation of topography (mountains and hills of these interfaces); - geophysics of the other terrestrial planets (4h); - seismic sources (6h): earthquake location, source parameters evaluation, focal mechanisms and tectonic stress inversion.